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# SCIENCE.

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FRIDAY, MARCH 11, 1887.

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## COMMENT AND CRITICISM.

ALTHOUGH CONGRESS HAS NOT ORDERED that the weather-bureau shall be transferred from the signal corps of the army to some civil department, the steps that were taken towards the transfer give strong assurance that it will be made next year, when it can be undertaken more deliberately. The action was briefly as follows: the house bill No. 5190, to create a department of agriculture and labor, received several amendments in the senate, among which the sixth had for its object the transfer of the weather-bureau from the signal office of the army to the new department on the 1st of next July. Although several senators voted on Feb. 23 against this amendment, because they thought the action was too precipitate, it had a majority of thirty-seven to fifteen, with twenty-four absent. It provided that the second lieutenants and the subordinate members of the corps should be transferred to the new department, without changing their work or their pay; that the rank of commissioned officers of the signal corps should not be affected by the transfer; and that the chief signal officer should remain in charge of the bureau after the transfer until a director should be appointed for it. The bill then returned to the house, where, according to the reports we have received, it would have certainly been passed as amended, had not an unforeseen obstacle arisen. The President, it seems, does not desire an additional member in his cabinet: the bill was therefore referred back to the committee on agriculture by his friends in the house, and at this late date in the crowded session it could not again be reached, not being 'privileged business.' So the matter is dropped for the present.

This postponement is, on the whole, not to be regretted. It is quite clear that the failure to make the change was not due at all to a belief that it ought not to be made. Senator Edmunds offered the only considerable objection to the transfer during the debate on the amendment. It was clear to him, "that the only way to have

an effective organization is to have it under military control, so that a man cannot resign because he gets miffed about something, but he must do his duty." This mistaken impression found few if any supporters. It seemed to be generally understood that the loss of individuality and complete submission to authority, which constitute the essence of the military spirit, are out of place in a service that wisely makes open declaration of its need of intelligent personal action by calling on college graduates to enlist in it. Senator Dawes thought every one agreed that the service "ought to be transferred to the civil department of the government," but believed that the transfer ought to be made more deliberately than was contemplated in the amendment. Senator Hale expressed the same views, and these two joined Edmunds and others in voting against the bill. But their favorable votes may be expected next winter, when perhaps less political and more appropriate surroundings may be chosen for the weather-bureau than it would have found in the proposed new department.

In the mean time the position of chief signal officer is given to Captain Greely, who is thereby promoted to be a brigadier-general, the senate having confirmed the President's nomination at the last moment. So great an advance in rank is unusual, and may be attributed in part to recognition of arctic heroism, — for surely the preservation of a complete series of records under the most difficult and tragic circumstances was a splendid achievement, — and possibly in part to the feeling that the office should be given to some one already in the service, rather than to some colonel who stood, indeed, nearer in the line of promotion, but who had had no experience in the weather-bureau. But the failure of the deficiency bill makes the position of chief signal officer an arduous one for the next year, for it is a thankless duty that involves reduction in some of the essentials of the service. It is to be regretted that the new chief was not given at least the best opportunity of showing his powers. The remedy for unsatisfactory weather-predictions is not likely to be found while the service is thus embarrassed.

SMALL-POX IS SAID to have appeared recently at Holyoke, Mass., among the rag-sorters of the paper-mills, presumably contracted from handling infected rags. There are two points of interest in connection with these cases, on which we should like information : first, were the suspected rags domestic, or foreign ? and, second, were the rag-sorters vaccinated, and, if so, when was the operation last performed ? The necessity for disinfecting foreign rags has been so much discussed of late years, that every instance of this kind should be thoroughly investigated, and the results reported in detail.

THE NEWEST MONOGRAPH of the American economic association is, like its predecessor, a study of co-operation. But the field of observation is shifted from Minnesota to New England. The author, Mr. Edward W. Bemis, keeps himself in the background throughout, only occasionally in the tone of his treatment giving indications that he is a believer in co-operation as a remedy for many of the existing and much-commented-on labor-troubles. The monograph is contained in one hundred and thirty-six pages, and gives a succinct account of the various co-operative and profit-sharing enterprises undertaken in New England, from the time of the hapless Brook Farm (1842-47) to the introduction of profit-sharing into a Boston newspaper establishment at the beginning of the present year. Distributive and productive co-operation are treated separately ; for they are very different things, the former being the simpler, more easily managed, and requiring a far smaller amount of capital than the other. The conditions of productive co-operation are more complicated and involved than those of co-operative distribution, and therefore the latter comes first in the order of time.

In New England the development of the co-operative movement seems to have been continuous, for members of the Brook Farm community were prominent in the co-operative enterprises of the Sovereigns of industry and the Knights of labor ; and the various protective unions, and so forth, seem to have grown one out of the other. The Sovereigns of industry, organized in 1874, assert that they were the first to introduce the Rochdale plan into this country, but members of the New England protective union claim to have established co-operative stores on the Rochdale plan in Boston as early as 1864. The peculiarity of the Rochdale

plan is, as is well understood, that goods shall be sold at the retail market-price, and any profits that remain, after an allowance has been made for a reserve fund and interest on capital, are apportioned to the customers on the basis of their trade for the period since the preceding distribution ; it is permitted to stockholders, however, to receive a larger dividend than is paid to outsiders.

As Mr. Bemis himself says, the record of the early years of the co-operative movement contains more failures than permanent successes. A comparison of the causes of failure, as adduced by the author, shows a curious agreement, even in the case of enterprises undertaken under conditions quite diverse. The New England protective union, for example, went along from 1847 until 1852, when it had as many as four hundred and three subdivisions, of which one hundred and sixty-five reported total sales the previous year of \$1,696,825.46. No attempt had been made to secure large profits ; goods were sold at as near the cost-price as was deemed consistent with safety ; and the members were satisfied with six-per-cent dividends on the stock. But there was frequently a simultaneous increase, both in the price of goods and in the amount of dividends to the comparatively small number of stockholders. "Many stores thus ceased to be co-operative, and the stock passed into the hands of a few of the more enterprising or well-to-do."

It is the same story all the way through. "The underlying causes of all co-operative failures are lack of intelligence and of the spirit of co-operation." After a time there is a disagreement ; the management is declared to be arbitrary ; the store-keeper is paid too much ; it is asserted that better bargains can be made outside. This creates lack of confidence, and to restore it there is a departure from the cash principle, or an increased dividend is declared. The result is disastrous. Most of the above sentences are culled from Mr. Bemis's history of the various concerns, and not a few of them are in substance the words of such believers in co-operation as Holyoake, George E. McNeill, and others. They involve the admission of all that the friendly critics of co-operation claim ; that is, that it is an ideal scheme, suited to a perfectly homogeneous community, the members of which are willing to make extensive temporary sacrifices in order to its ultimate success. For this

reason it cannot become a universal economic system. The same human nature that interferes with so many other beneficent schemes, interferes with this. "Co-operative concerns fail because of a failure to co-operate," is the universal verdict.

It is but fair to point out that the data gathered from the latter part of the period of which Mr. Bemis writes, are more favorable to co-operation. Increased experience may have something to do with this. From the tables compiled by the author, it appears that productive co-operation in twenty companies in New England shows a business of \$1,000,000 a year; co-operative stores have a trade of over \$1,750,000; co-operative creameries do a business probably of \$1,000,000; and about \$3,250,000 are invested in co-operative banks. So that, apart from co-operative insurance companies, the annual business of the co-operative companies of New England amounts to about seven millions of dollars. In Massachusetts the conditions seem to be specially favorable to co-operative companies, as the state has a general law for their incorporation. The capital stock of such a company is limited to \$100,000, and must be more than \$1,000. No one person can hold more than \$1,000 worth of stock, or have more than one vote. It is further provided that there shall be an annual distribution of profits among the workmen, purchasers, and stockholders; but ten per cent of the net profits must first be set aside for a contingent or sinking fund, until a sum equal to thirty per cent of the capital stock shall have been accumulated. The word 'co-operative' must form part of the corporate name, and shares to an amount not exceeding twenty dollars are exempt from attachment and execution. The credit of the company and security of the stockholders are further increased by a full report made annually to the secretary of state. The last section of the monograph is devoted to profit-sharing, and brings forward some interesting instances in which it has been put in operation. The best known, perhaps, is that of the Peace Dale manufacturing company, where profit-sharing was begun eight years ago. An average dividend of four per cent on the wages was paid to the workmen for four years, but since 1883 no dividend has been declared. From none of the cases of profit-sharing adduced by Mr. Bemis can we deduct any arguments which meet the objections of Mr. Aldrich, on which we commented last week.

#### THE EXPLORATION OF THE WELLE.

SCHWEINFURTH has recently sent a letter to the editor of *Le mouvement géographique*, from which we take the following abstract: The Welle-Makua has been crossed by Junker at six different points. At Ali Kobo, in the country of the Basange, his farthest point west, the river attains such dimensions that he could not estimate its size, particularly as it is blocked up by islands, which are not only densely populated and highly cultivated, but afford ample room for herds of elephants which abound there. Junker could not stay here longer than four days. Only a comparatively short distance from the Kongo, he was compelled to return, as Lupton Bey, the governor of the Egyptian province Bahr-el-Gazal, sent him word of the rapid spreading of the mahdi's power. Eight days' journey beyond the extreme point reached by Junker, the Mbomo empties itself into the Welle. The Mbomo runs east and west, and has many tributaries, which come from the watershed between the Kongo, the Shari, and the Nile. In February, 1883, Junker reached Abi Kobo. Junker's 'Nepoko' is probably the upper course of the Biverre. He heard another river mentioned, the Nava, which, however, he did not see. Schweinfurth is of the opinion that it may be the upper course of the Biverre, while the Nepoko may be that of the Mburu. The quantity of water in the latter is, however, so small that its source must be looked for farther west.

Wauters's hypothesis of the identity of the Welle and Obangi becomes very probable by Junker's new discoveries, as will be seen by the accompanying sketch-map. Wauters supposes that Grenfell, who explored the latter river, passed by the mouth of the Welle without seeing it. The remarkable form of the right bank of the Obangi, the appearance of the first hills at the place of the supposed confluence, the dotted lines by which Grenfell indicates the left bank at this point, and the suddenly increasing shallowness of the river, all support Wauters's hypothesis. This new information is of great importance for the progress of Stanley's expedition for the relief of Emin Pasha. He may either ascend the Obangi and Welle, the Biverre-Nepoko, or start from Stanley Falls. It is doubtful whether there are any rapids in the Welle that might obstruct his passage. As Grenfell passed the rapids of the Obangi in latitude 4° 30' north without any difficulty, and those of the Kongo at Rubungu do not prevent the passage of steamers, it is possible that no serious difficulties of navigation exist.

We may be allowed to call to mind at this place the sources of our former knowledge of this district. After Schweinfurth's discovery of the